

7900 South J. Stock Road Tucson, Arizona 85746



# **FY98 ENERGY REPORT**

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#### **FY98 ENERGY REPORT**

#### INTRODUCTION

This report pertains to the facilities in the Tucson Area Indian Health Service, including the Sells Indian Hospital, Santa Rosa Clinic, San Xavier Clinic, Pisinemo Health Station, and Casa Grande Western District Office (leased).

#### A. ANNUAL ENERGY MANAGEMENT DATA REPORT

- I. Energy Consumption and Cost Data: See Appendix A.
- II. Energy Conservation Program Summary: See Appendix B.

#### B. ENERGY CONSUMPTION REDUCTION GOALS

The Tucson Area goals for energy conservation are as follows, calculated on the base year FY85:

1995	10 % reduction
2000	20 % reduction
2005	30 % reduction

The Tucson Area energy conservation program is described in facilities policy number FMB 5.1, Energy Management/Conservation. This policy calls for monitoring of energy consumption, evaluation and analysis of trends, and measurement against energy reduction goals. Management is kept informed of the status of energy use and conservation.

For new construction, renovation, or repair of equipment and structures, the use of energy is a consideration. The use of automatic equipment such as night setback thermostats and motion or occupancy sensors is encouraged. Replacement equipment is sought which has a high energy efficiency ratio (EER). When facilities are renovated, the use of energy during normal operations is considered, and appropriate insulation and ventilation rates are used. The facilities are evaluated periodically for energy conservation opportunities.

Each facility (Sells and San Xavier) has individuals trained in recognizing energy-saving opportunities. A reminder checklist is included in the facilities policy. Facilities maintenance staff are being trained in maintenance procedures which enhance energy efficiency.

#### C. ENERGY SAVINGS PERFORMANCE CONTRACTS: No information to report.

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#### D. ENERGY EFFICIENCY AND WATER CONSERVATION PROJECT FUNDING:

Funding for energy/utilities management and conservation comes from M&I operations and project funds, and from the Energy surveys and projects fund. The amounts of FY98 funds in each account:

M&I Operations

\$382,000

M&I Projects

\$263,000

Energy Surveys & Projects

\$0

The only funds specifically designated for energy projects are from the energy surveys and projects fund. The M&I operations fund is for repair parts, repairs, maintenance, small contract jobs, and other daily maintenance operations. The M&I projects fund is for any other projects requested. Due to the depreciating infrastructure in buildings, equipment, utilities, paving, and fences, the projects fund cannot meet all requirements.

#### E. ENERGY AND WATER SURVEYS AND AUDITS:

I. PRIORITIZATION SURVEY: The initial energy management surveys were conducted in 1986 and 1993, and a portion of each Deep Look survey involved energy management. In addition, an energy study was conducted for the Sells Hospital in 1991.

The 1982 survey of San Xavier and Santa Rosa states that the two facilities were operated in an energy efficient manner and that "Energy saving retrofit projects are not cost effective when applied to energy efficient facilities." The report does state that some mechanical renovations and automatic controls would save energy. Further, the report stated the use of the incinerator and exercise of the generator at Santa Rosa caused 20% of the total energy use; both have been discontinued.

The 1982 survey of Sells says that the compound exceeds the Department of Energy goals by 13.5%. It also said that architectural renovations would not produce sufficient savings to justify the expenditure. The report recommends some mechanical renovations to save energy, and also the installation of gas meters to identify major users of LPG. Since that time, the quarters have been removed from the central LPG system and each quarters building is individually metered. The LPG system servicing the hospital has been replaced.

The findings of the 1991 Sells study recommended replacement of some equipment, reviewing equipment sizing to optimize efficiency, reviewing design parameters on outside air quantities to reduce HVAC energy requirements, and making some operational changes to reduce energy use.

The initial surveys have been conducted. Two major mechanical renovation projects at Sells and San Xavier have incorporated many of the recommendations, and another major renovation project at Sells should begin in FY99. This project will implement other conservation

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measures. Following the completion of the project, another survey may be needed to re-assess the energy conservation status.

- II COMPREHENSIVE FACILITY AUDIT: These audits have yet to be completed. The guidelines and scope for conducting these audits have not yet been written. The audits will be conducted by Architect/Engineer contractors. The transfer of functions from Engineering Services to the Area may delay completion.
- III LEASED FACILITIES: About 1% of the square footage utilized by IHS personnel in the Tucson Area is leased. Since all utilities are paid by the leasor, no audits or projects are planned for those facilities. The amount of leased space is expected to increase in FY99.
- F. IMPLEMENTATION OF ENERGY EFFICIENCY AND WATER CONSERVATION PROJECTS: No information to report.
- G. SOLAR AND OTHER RENEWABLE ENERGY: No information to report. No plan has been developed to significantly increase the use of solar power or other renewable energy sources. No renewable energy projects were implemented in FY98 and none were proposed for future projects.
- H. MINIMIZATION OF PETROLEUM-BASED FUEL USE: The major fuels at San Xavier are natural gas and electricity; the electricity is provided from coal-fired power plants. The major fuels used at Sells are LPG and electricity. The major power sources at Santa Rosa and Pisinemo are electricity.
- I. ENERGY EFFICIENT OPERATIONS AND MAINTENANCE PROCEDURES: Thermostats and controls are replaced with automatic time-setback models to conserve energy where feasible; the use of occupant sensors has been implemented in some rooms. Water-saving valves and toilets are replacing less efficient ones as the older ones wear out. When equipment is replaced, more efficient units are specified. The use of outdoor air is used when feasible. As lighting is replaced, more efficient lamps and ballasts are used. Maintenance staff are trained in maintenance procedures which enhance energy efficiency.
- J. ENERGY EFFICIENCY IN NEW SPACE: No information to report.

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- K. PERFORMANCE EVALUATIONS: No information to report.
- L. INCENTIVE AWARDS: No information to report.
- M. PROCUREMENT OF ENERGY EFFICIENT PRODUCTS: The specifications written to replace equipment and products require all new items meet appropriate energy efficiency standards. This includes air conditioners, water heaters, lighting, and furnaces. As lamps and ballasts are replaced, energy efficient lamps (such as T-8 lamps) and electronic or magnetic ballasts are utilized. As toilets, faucets, and shower heads are replaced, the low-flow and water conserving type are used. As roofs are replaced, those with higher insulating values are used. The replacement of 15- and 20-year old furnaces and air conditioners with more efficient ones continue, using units with some of the most efficient available; continually burning pilot lights are replaced with electronic pilots.
- N. ENERGY MANAGEMENT TRAINING: The Tucson Area has two trained energy managers. Both have attended the IHS Energy Management training conducted by Headquarters staff. Two new facilities engineers will attend energy management training when possible.
- O. ENVIRONMENTAL BENEFITS OF ENERGY MANAGEMENT ACTIVITIES: No information to report.

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	ENERGY (	CONSUMP	TION AND COS	T DATA			
I.H.S. Area:	Tucson			Reported Y	ear:	FY 1998	
Prepared By:	Roger Cari	michael		Title:		Area Facil	Engr
Phone:	520-295-25	580		Date Subm	itted:	11/2/98	
BUILDINGS/FACILIT	IES						
					Annual		
Energy	Reporting		Annual		Cost	Unit	Total
<u>Type</u>	<u>Units</u>		Consumption		(\$ x 10*3)	Cost	MBTU
Electric	KWH x 10*	:3	2744 kkwh		234		937
Fuel Oil	Gal x 10*3		0		0		
Nat. Gas	cf x 10*4		676		5		7.8
LPG/Prop.	Gal x 10*3		39134		39		160
Coal	Ton		0		0		(
Purch. Stm.	MMBTU		0		0		(
Other	MMBTU		0		0		(
Total					278		10983
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Gross Square Feet =	142,459		BTU/gst =	77,093		ψ/gsi –	Ψ1.50
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Roger Carmichael, P.	E.				Date		
Area Facilities Engine							
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Rod Gardner					Date		
Area Assoc Dir, DEHI							
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		APPENDIX B				
		ATT ENDIX D				
	ENERGY	CONSERVATION	PROGRAM SUI	MMARY		
I.H.S. Area:	Tucson		Reported \	/ear:	FY 1998	
Prepared by:	Roger Car	michael	Title:		Area Facil	Enar
Phone:	520-295-2		Date Subm	itted:	11/2/98	
i none.	020 200 2		Date Cabi.		,_,	
DIRECT AGENCY	/ EXPENDITUR	FS:				
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ENERGY SAVING Number of ESP Co	SS PERFORMA ontracts Awarde	NCE CONTRACT	None	MMBTU	0	\$
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ENERGY SAVING Number of ESP Co Annual Savings An UTILITY INCENTI Incentives Receive Funds Spent to Re Annual Savings An TRAINING: Current Year Expension Number of Person Roger Carmichael	VES: ed: enditures for Ennel Trained:  P.E.	ed: ESP Contracts:  es: DSM Activities:	None  0  0  0  Training:	\$ \$ MMBTU \$7,500 8		
ENERGY SAVING Number of ESP Co Annual Savings An UTILITY INCENTI Incentives Receive Funds Spent to Re Annual Savings An TRAINING: Current Year Expension Number of Person Roger Carmichael	VES: ed: enditures for Ennel Trained:  P.E.	ed: ESP Contracts:  es: DSM Activities:	None  0  0  0  Training:	\$ \$ MMBTU \$7,500 8		
ENERGY SAVING Number of ESP Co Annual Savings An UTILITY INCENTI Incentives Receive Funds Spent to Re Annual Savings An TRAINING: Current Year Expension Number of Person Roger Carmichael	VES: ed: enditures for Ennel Trained:  P.E.	ed: ESP Contracts:  es: DSM Activities:	None  0  0  0  Training:	\$ \$ MMBTU \$7,500 8		
ENERGY SAVING Number of ESP Co Annual Savings An UTILITY INCENTI Incentives Receive Funds Spent to Re Annual Savings An TRAINING: Current Year Expension Number of Person Roger Carmichael	VES: ed: enditures for Ennel Trained:  P.E.	ed: ESP Contracts:  es: DSM Activities:	None  0  0  0  Training:	\$ \$ MMBTU \$7,500 8		
ENERGY SAVING Number of ESP Co Annual Savings An UTILITY INCENTI Incentives Receive Funds Spent to Re Annual Savings An TRAINING: Current Year Expension Number of Person Roger Carmichael	VES: ed: enditures for Ennel Trained:  P.E.	ed: ESP Contracts:  es: DSM Activities:	None  0  0  0  Training:	\$ \$ MMBTU \$7,500 8		
ENERGY SAVING Number of ESP Co Annual Savings An UTILITY INCENTI Incentives Receive Funds Spent to Re Annual Savings An TRAINING: Current Year Expe Number of Person Roger Carmichael Area Facilities Eng	VES: ed: enditures for Ennel Trained:  P.E.	ed: ESP Contracts:  es: DSM Activities:	None  0  0  0  Training:	\$ \$ MMBTU \$7,500 8 - 2  998 Date		
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P.08

	DEPARTMENT OF HEAL	TH & HUMAN SERVICES	
	TUCSON AREA INDIA		-
	7900 South J	. Stock Road	
	Tucson, Ariz	ona 85746	
	FY98 ENERGY	YREPORT	
	APPENDIX	B	
	ENERGY CONCEDIATIO	At Door Att of loans and	
	ENERGY CONSERVATIO	N PROGRAM SUMMARY	
I.H.S. Area:	Tucson -	Banarad Vasa	- <del>                                     </del>
Prepared by:	Roger Carmichael	Reported Year:	FY 1998
Phone:	520-295-2580	/	Area Facil Engr
	320-233-2380	Date Submitted:	11/2/98
DIRECT AGENCY	EXPENDITURES:		
	s on Facility Energy Efficiency I	mprovements	
	The same of the sa	Current	- No. 4
-	<del></del>	Fiscal	Next Fiscal
	<del></del>	Year	·
Annual Expenditure	es (Thous, \$)	34.5	Year 25
Annual Savings An	ticipated from Expenditures	0.9 MBTU	1 (Thous \$)
<b>ENERGY SAVING</b>	S PERFORMANCE CONTRAC	TS:	
Number of ESP Co		None	<del>-</del>
Annual Savings An	ticipated from ESP Contracts:	OMMBTU	0 \$
UTILITY INCENTIV			
Incentives Receive		0 \$	
Funds Spent to Rec		0 \$	
Annual Savings An	ticipated from DSM Activities:	0 MMBTU	0 \$
TRAINING:	<del></del>		
Number of Personn	nditures for Energy Managemen	· · · · · · · · · · · · · · · · · · ·	·
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Roger Carmichael,	P. <b>E</b>	Date	
Area Facilities Engir	neer		
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KANTA		1/4/	
1 00	auc	11/2/98	
Rod Gardner		Ďate	
Area Assoc. Dir., DE	HE		
			В

	Total	Use	(MBTU/sf)	0.011724	0.102276	0.061829	0.086029	0.077095							SUMIOC
	Total		(\$)	512.88	9632.72	104713.3	163051.4	277910.3							
	Ta+o+	Energy	(MBTU)	13.2946	381.797	3191.371	7396.395	10982.86				TO STATE OF THE ST			
		Propane	(MBTU)	0	0	0	1604.494	1604.494							
		Nat Gas	(MBTU)	0	0	7.7717	0	7.7717					3		
		Elec	(MBTU)	13.2946	381.797	3183.6	5791.901	9370.593							
	200	Space	(st)	1134	3733	51616	85976	142459							
		Propane	(\$)	0	0	0	38735.94	38735.94							
		Propane	(gal)	0	0	0	39134	39134							
		Nat Gas	(\$)	0	0	5074.55	0	5074.55							
E PORT		Nat Gas	(1000 cf)	0	0	6758	0	6758			And the second of the second o				
ENERGY R		Elec	(\$)	512.88	9632.72	99702.92	124315.5	234164							
ON AREA ENERGY REI		Elec	(kwh)	3893	111800	932240	1696018	2743951							
FY98 TUCSON AREA ENERGY REPORT SUMMARY SHEET, BY LOCATION			Location	Pisinemo	Santa Rosa	San Xavie	Sells	Total							